BIRNIE, PATRICIA
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Hello, this is Patricia Birnie in Tucson, Arizona. I just called previously to request a DEIS on MOX. I also wanted to request that a hearing be placed for this in Phoenix, Arizona since the Palo Verdi Reactors are probably at the top of the DOE list of possible reactors for using MOX fuel. It would seem to be appropriate and a courtesy to local residents in our area that you would assign a hearing, public hearing to be in Phoenix, Arizona. You have my name and address from the previous request for the DEIS but I would like to record this request for a hearing in Phoenix. Thank you, bye. 1

PD003

PD003–1 General SPD EIS and NEPA Process

DOE acknowledges the commentor's request for a public hearing in Phoenix, Arizona. Because the proposed reactors were not known at the time the SPD Draft EIS was published, DOE issued the *Supplement to the SPD Draft EIS* in April 1999. The *Supplement* included a description of the affected environment around the three proposed reactor sites, and analyses of the potential environmental impacts of operating these reactors using MOX fuel (Sections 3.7 and 4.28 of this SPD EIS, respectively). The proposed reactors are Catawba Nuclear Station Units 1 and 2 in South Carolina, McGuire Nuclear Station Units 1 and 2 in North Carolina, and North Anna Power Station Units 1 and 2 in Virginia.

During the 45-day period for public comment on the *Supplement*, DOE held a public hearing in Washington, D.C., on June 15, 1999, and invited comments. After careful consideration of its public involvement opportunities, including the availability of information and mechanisms to submit comments, DOE decided not to hold additional hearings on the *Supplement*. DOE provided other means for the public to express their concerns and provide comments: mail, a toll-free telephone and fax line, and the MD Web site. Also, at the invitation of a South Carolina State Senator, DOE attended and participated in a public meeting held on June 24, 1999, in Columbia, South Carolina.

The *Supplement* was mailed to those stakeholders who requested it as well as to those specified in the DOE *Communications Plan* (i.e., Congressional representatives, State and local officials and agencies, and public interest groups around the United States) and the utilities' contact lists. The utilities, Duke Power Company and Virginia Power Company, would operate the proposed reactors (located in North Carolina, South Carolina, and Virginia) should the MOX approach be pursued per the SPD EIS ROD. Further, interested parties would likely have the opportunity to submit additional comments during the NRC reactor license amendment process.

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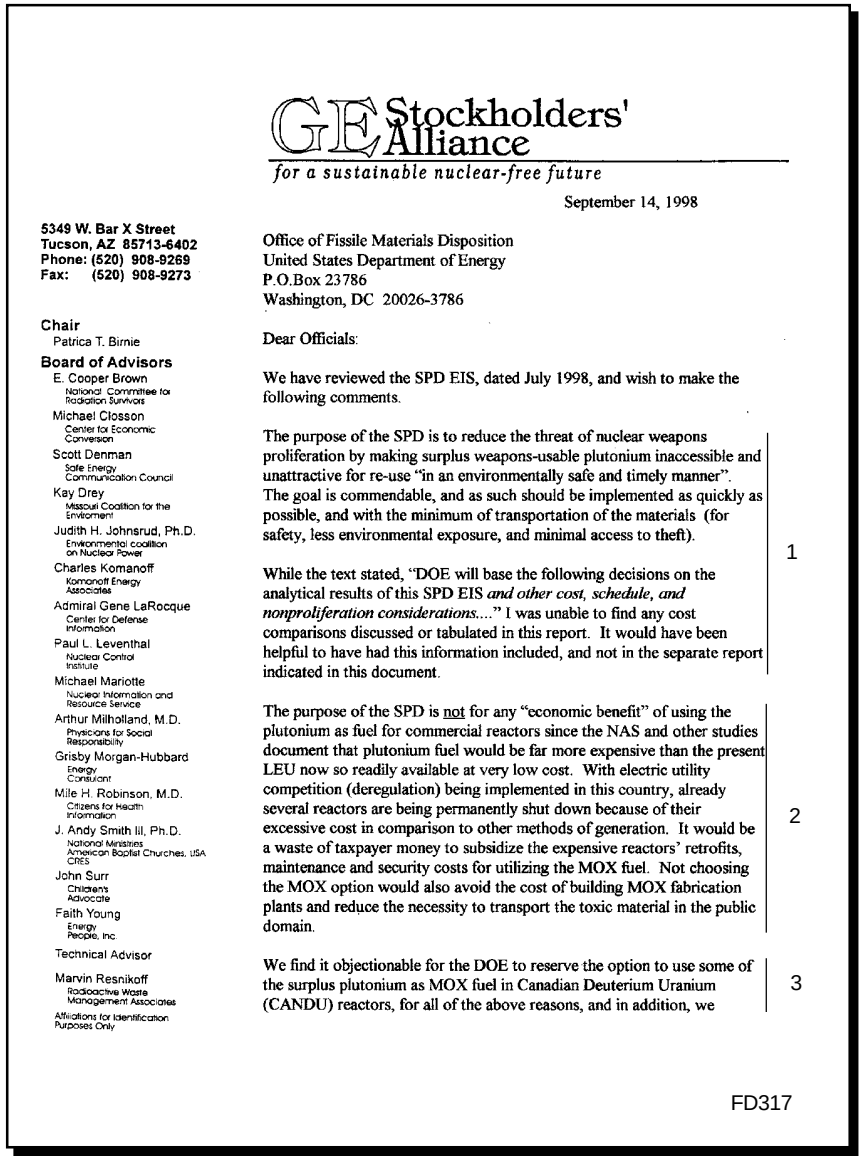

GE Stockholders' Alliance
for a sustainable nuclear-free future

September 14, 1998

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Office of Fissile Materials Disposition
United States Department of Energy
P.O.Box 23786
Washington, DC 20026-3786

Dear Officials:

We have reviewed the SPD EIS, dated July 1998, and wish to make the following comments.

The purpose of the SPD is to reduce the threat of nuclear weapons proliferation by making surplus weapons-usable plutonium inaccessible and unattractive for re-use "in an environmentally safe and timely manner". The goal is commendable, and as such should be implemented as quickly as possible, and with the minimum of transportation of the materials (for safety, less environmental exposure, and minimal access to theft). 1

While the text stated, "DOE will base the following decisions on the analytical results of this SPD EIS *and other cost, schedule, and nonproliferation considerations....*" I was unable to find any cost comparisons discussed or tabulated in this report. It would have been helpful to have had this information included, and not in the separate report indicated in this document.

The purpose of the SPD is not for any "economic benefit" of using the plutonium as fuel for commercial reactors since the NAS and other studies document that plutonium fuel would be far more expensive than the present LEU now so readily available at very low cost. With electric utility competition (deregulation) being implemented in this country, already several reactors are being permanently shut down because of their excessive cost in comparison to other methods of generation. It would be a waste of taxpayer money to subsidize the expensive reactors' retrofits, maintenance and security costs for utilizing the MOX fuel. Not choosing the MOX option would also avoid the cost of building MOX fabrication plants and reduce the necessity to transport the toxic material in the public domain. 2

We find it objectionable for the DOE to reserve the option to use some of the surplus plutonium as MOX fuel in Canadian Deuterium Uranium (CANDU) reactors, for all of the above reasons, and in addition, we 3

FD317

FD317–1 **Cost**

Although cost will be a factor in the decisionmaking process, this SPD EIS contains environmental impact data and does not address the costs associated with the various alternatives. A separate cost report, *Cost Analysis in Support of Site Selection for Surplus Weapons-Usable Plutonium Disposition* (DOE/MD-0009, July 1998), which analyzes the site-specific cost estimates for each alternative, was made available around the same time as the SPD Draft EIS. This report and the *Plutonium Disposition Life-Cycle Costs and Cost-Related Comment Resolution Document* (DOE/MD-0013, November 1999), which covers recent life-cycle cost analyses associated with the preferred alternative, are available on the MD Web site at http://www.doe-md.com and in the public reading rooms at the following locations: Hanford, INEEL, Pantex, SRS, and Washington, D.C. Decisions on the surplus plutonium disposition program will be based on environmental analyses, technical and cost reports, national policy and nonproliferation considerations, and public input.

FD317–2 **MOX Approach**

DOE acknowledges the commentor's opposition to the MOX approach. Use of MOX fuel in domestic, commercial reactors is not proposed in order to subsidize the commercial nuclear power industry. Rather, the purpose of this proposed action is to safely and securely disposition surplus plutonium by meeting the Spent Fuel Standard. The Spent Fuel Standard, as identified by NAS and modified by DOE, is to make the surplus weapons-usable plutonium as inaccessible and unattractive for weapons use as the much larger and growing quantity of plutonium that exists in spent nuclear fuel from commercial power reactors. The MOX facility would produce nuclear fuel that would displace LEU fuel that utilities would have otherwise purchased. If the effective value of the MOX fuel exceeds the cost of the LEU fuel that it displaced, then the contract provides that money would be paid back to the U.S. Government by DCS based on a formula included in the DCS contract. The commercial reactors selected for the MOX approach include only those reactors whose operational life is expected to last beyond the life of the surplus

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consider it unwise to join limited international agreements between countries over whose internal policies we have no control, when fissile materials disposition is the focus. We have difficulty supporting a process (MOX fuel use) that bridges the traditional separation between military and civilian uses of nuclear materials. Since Russia is "broke", the U.S. is likely to finance whatever disposition takes place in Russia. It would be to our economic and political interest to advocate and promote the immobilization-only option of disposition for Russia as well as the U.S. 3

In the discussion of air quality, the report was not clear whether depleted uranium hexafluoride would be involved in the pit conversion or immobilization processes. Two charts indicated the gaseous fluoride standards at SRS and Hanford (not Pantex or INEEL). And another section indicated that ceramic immobilization requires the use of uranium dioxide (obtained from depleted uranium hexafluoride). But nowhere did I find any charts or discussion as to air pollutants to include hexafluoride. Since hexafluoride is a very toxic compound, I want to make sure this was not overlooked. 4

I have several questions in regard to Accident Scenarios for the various locations.

1) The text stated that an aircraft crash scenario was discussed only for the Pantex facility (because calculations of frequency of expected crashes at all the other sites was too low). I strongly believe that an aircraft crash is a possible source of terrorist activity at each of the sites, even though those locations may not be near regularly scheduled flights. Therefore, it seems appropriate to consider an aircraft crash at each location as a possibility, especially now that terrorism is currently a greater threat. 5

2) Even though the SRS is perhaps 90 miles inland, I wonder if hurricane damage has been considered as a threat to the facility? This was not mentioned in the text.

3) I found no reference to potential tornado damage being considered as an accident scenario for the Pantex site (which is located in the heart of tornado country). 6

From the point of view of proximity to supporting facilities, it would appear to me that the SRS site would require the least overall transportation of materials, once the plutonium pits had been shipped to SRS. SRS also appears to have the largest pool of potential workers for both construction and operation of the facilities. 7

It seems logical for the can-in-canister method of immobilization to be chosen as the preferred method of immobilization, from the standpoint of fewer workers required, and lower waste volumes than the homogenous ceramic immobilization or the homogeneous vitrification technology previously evaluated. 8

We strongly recommend that the DOE conduct SPD EIS reviews at each of the candidate reactor sites, and conduct public hearings at each of these sites before choosing any reactor complex for 9

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plutonium disposition program. DCS would pay for spent fuel disposal in the same manner as LEU spent fuel as well as the ultimate D&D of the reactors.

DOE has identified as its preferred alternative the hybrid approach. Pursuing both immobilization and MOX fuel fabrication provides the United States important insurance against potential disadvantages of implementing either approach by itself. The hybrid approach also provides the best opportunity for U.S. leadership in working with Russia to implement similar options for reducing Russia's excess plutonium in parallel. Further, it sends the strongest possible signal to the world of U.S. determination to reduce stockpiles of surplus plutonium as quickly as possible and in a manner that would make it technically difficult to use the plutonium in weapons again.

Transportation would be required for both the immobilization and MOX approaches to surplus plutonium disposition. Transportation of special nuclear materials, including fresh MOX fuel, would use DOE's SST/SGT system.

FD317–3 **Nonproliferation**

In the SPD Draft EIS, DOE retained the option to use some of the surplus plutonium as MOX fuel in CANDU reactors, which would have only been undertaken in the event that a multilateral agreement were negotiated among Russia, Canada, and the United States. Since the SPD Draft EIS was issued, DOE determined that adequate reactor capacity is available in the United States to disposition the portion of the U.S. surplus plutonium that is suitable for MOX fuel and, therefore, while still reserving the CANDU option, DOE is no longer actively pursuing it. However, DOE, in cooperation with Canada and Russia, proposes to participate in a test and demonstration program using U.S. and Russian MOX fuel in a Canadian test reactor. A separate environmental review, the *Environmental Assessment for the Parallex Project Fuel Manufacture and Shipment* (DOE/EA-1216, January 1999), analyzes the fabrication and proposed shipment of MOX fuel rods for research and development activities involving the use of limited amounts of U.S. MOX fuel in a

Canadian test reactor. A FONSI was signed on August 13, 1999. Both of these documents can be viewed on the MD Web site at http://www.doe-md.com. If a decision is made to dispose of Russian surplus plutonium in Canadian CANDU reactors in order to augment Russian's disposition capability, shipments of the Russian MOX fuel would take place directly between Russia and Canada.

The *Joint Statement of Principles* signed by Presidents Clinton and Yeltsin in September 1998 provided general guidance for achieving the objectives of a future bilateral agreement to disposition surplus plutonium in the United States and Russia. Sensitive negotiations between the two countries have indicated that the Russian government accepts the technology of immobilization for low-concentration, plutonium-bearing materials, but that the MOX approach would be considered for higher-purity feed materials.

DOE acknowledges the commentor's opposition to the commercial use of weapons-usable plutonium. The goal of the surplus plutonium disposition program is to reduce the threat of nuclear weapons proliferation worldwide by conducting disposition of surplus plutonium in the United States in an environmentally safe and timely manner. Converting the surplus plutonium into MOX fuel and using it in domestic, commercial reactors is an effective way to accomplish this. Consistent with the U.S. policy of discouraging the civilian use of plutonium, a MOX facility would be built and operated subject to the following strict conditions: construction would take place at a secure DOE site, it would be owned by the U.S. Government, operations would be limited exclusively to the disposition of surplus plutonium, and the MOX facility would be shut down at the completion of the surplus plutonium disposition program. For reactor irradiation, the NRC license would authorize only the participating reactors to use MOX fuel fabricated from surplus plutonium, and the irradiation would be a once-through cycle with no reprocessing irradiation.

FD317–4 **Air Quality and Noise**

Depleted uranium hexafluoride would be converted to depleted uranium dioxide at a commercial conversion facility (see Section 1.5). Depleted uranium dioxide would be used as feed material for the ceramic immobilization option and in the MOX facility. Section 4.30.3 analyzes the conversion of depleted uranium hexafluoride, from a representative site (Portsmouth), to uranium dioxide, which would be used as feedstock for immobilization and MOX fuel fabrication. No air pollutant emissions of gaseous fluorides are expected from the immobilization facility or the MOX facility.

FD317–5 **Facility Accidents**

The possibility of an aircraft crash due to intentional terrorist activity is considered to be conjecture, and is not analyzed in this SPD EIS. However, an accidental aircraft crash is analyzed for Pantex, including an estimate of the credible consequences of such an event.

FD317–6 **Facility Accidents**

Section K.1.3.2 states that because of the robust structure of new plutonium facilities, the only design basis natural-phenomena-initiated accidents with the potential to impact the facility interior are seismic events. Similarly, seismic events also bound the consequences and risks posed by beyond-design-basis natural phenomena. In other words, the surplus plutonium disposition facilities have been designed to withstand natural phenomena, including hurricanes and tornadoes at sites where these phenomena are of concern, such as Pantex, where the frequency of tornadoes is high relative to the other candidate sites.

FD317–7 **Alternatives**

As indicated in the revised Section 1.6, SRS is preferred for the surplus plutonium disposition facilities because the site has extensive experience with plutonium processing, and these facilities complement existing missions and take advantage of existing infrastructure.

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FD317–8 **Immobilization**

DOE acknowledges the commentor's support for the preferred can-in-canister technology for immobilization.

FD317–9 **General SPD EIS and NEPA Process**

The SPD Final EIS was not issued until the proposed reactors had been identified and the public had an opportunity to comment on the reactor-specific information. As part of the procurement process, bidders were asked to provide environmental information to support their proposals. This information was analyzed in an Environmental Critique prepared for the DOE source selection board prior to award of the MOX fuel fabrication and irradiation services contract. DOE then prepared an Environmental Synopsis on the basis of the Environmental Critique, which was released to the public as Appendix P of the *Supplement to the SPD Draft EIS* in April 1999. This *Supplement* included a description of the affected environment around the three proposed reactor sites, and analyses of the potential environmental impacts of operating these reactors using MOX fuel (Sections 3.7 and 4.28 of this SPD EIS, respectively). During the 45-day period for public comment on the *Supplement*, DOE held a public hearing in Washington, D.C., on June 15, 1999, and invited comments. Responses to those comments are provided in Volume III, Chapter 4.

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participation in MOX utilization. We feel that this EIS is incomplete for not including this review as part of your report. 9

If immobilization for ALL of the surplus plutonium is chosen, the costs and risks would obviously be much lower since neither the MOX fuel fabrication facility, nor the plutonium polishing process (the report did not say that gallium must be removed for the immobilization process), nor the Lead Assembly fabrication facility would be required, nor would the DOE have to subsidize the chosen reactors' maintenance, operations and enhanced security for the duration of the MOX fuel use. This would save not only money, but would create less environmental pollution, less radioactive waste, and less worker exposure/public exposure, and cost less for eventual decontamination and decommissioning of facilities since fewer facilities would be involved. The report did not state whether the DOE would be responsible for the decommissioning of the reactors chosen for MOX utilization, but I would assume it would be a part of the agreement required by any utility choosing to be a part of the SPD mission. 10

The SPD EIS does not make it clear what the criteria for decisions by the DOE on which method(s)/location(s) will be chosen. If the criteria are: based on common sense, the answer would be obvious: Immobilize ALL of it; based on economics, the answer would be obvious: Immobilize ALL of it; based on least environmental impact, the answer would be obvious: Immobilize ALL of it; based on the greatest public interest, the answer would be obvious: Immobilize ALL of it; but based on politics, special interests and corporate PAC influences, the choices are wide open, but not likely to be in the public interest.

If nuclear disarmament progresses as proponents advocate, there will be great quantities of additional surplus plutonium that will also need disposal. This SPD covers only surplus weapons plutonium disposal. What is to become of the huge and growing quantities of plutonium which has been separated by reprocessing from commercial irradiated fuel...and which may never be used as fuel in commercial reactors? 11

In this report I found no clear delineation of the roles and jurisdictions of the Nuclear Regulatory Commission and the Department of Energy for SPD. This is a crucial matter to be resolved before starting on any part of the process. 12

Respectfully Submitted,

Patricia T. Birnie

Patricia T. Birnie, Chair

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FD317–10 **Alternatives**

DOE acknowledges the commentor's support for the immobilization-only approach. The remainder of this comment is addressed in responses FD317–1, FD317–2, and FD317–3.

FD317–11 **DOE Policy**

U.S. policy dating back to the Ford Administration has prohibited the commercial, chemical reprocessing and separation of plutonium from spent nuclear fuel. Therefore, the United States will not build an inventory of plutonium that has been separated from commercial irradiated fuel. Other nations who do reprocess, however, will produce such plutonium. In his *Nonproliferation and Export Control Policy* (September 1993), President Clinton states that "the United States will maintain its existing commitment regarding the use of plutonium in civil nuclear programs in Western Europe and Japan" even though this country does not encourage the civil use of plutonium.

FD317–12 **NRC Licensing**

DOE is responsible for implementing the U.S. program for surplus plutonium disposition. DOE would own the proposed non-reactor facilities and would be responsible for operation and regulatory oversight of the pit conversion and immobilization facilities. DCS would operate the MOX facility under an NRC license issued in accordance with 10 CFR 70, *Domestic Licensing of Special Nuclear Material*. All three proposed facilities would be located at DOE sites, and DOE anticipates that the MOX facility would use the site infrastructure. NRC will continue to be responsible for licensing the specific reactors selected to use MOX fuel, and as such would have to approve the use of MOX fuel through the license amendment process. In addition, early in the preparation of the *Storage and Disposition PEIS* and this SPD EIS, DOE invited NRC to be a cooperating agency for the surplus weapons-usable fissile materials program. NRC declined the offer in favor of being a commenting agency. DOE is conducting regular meetings with NRC on the MOX approach, including fuel design and qualification.